

## Contents

<b>24 - Mixture preparation - injection</b> .....	<b>1</b>
<b>1 Safety precautions and rules for cleanliness</b> .....	<b>1</b>
1.1 General notes on self-diagnosis .....	1
1.2 Safety precautions when using testers and measuring instruments during a road test .....	1
1.3 Safety precautions for vehicles with start/stop system .....	2
1.4 Safety precautions when working on the fuel system .....	2
1.5 Rules for cleanliness and instructions for working on fuel system .....	3
1.6 Safety precautions when working on the ignition system .....	4
1.7 Reducing pressure in high-pressure section of injection system .....	4
1.8 Checking vacuum system .....	6
<b>2 Injection system</b> .....	<b>8</b>
2.1 Technical data .....	8
2.2 Overview of fitting locations .....	8
<b>3 Air cleaner</b> .....	<b>18</b>
3.1 Air cleaner - exploded view .....	18
3.2 Removing and installing engine cover panel .....	19
3.3 Removing and installing air filter element .....	19
3.4 Removing air cleaner housing .....	21
<b>4 Intake manifold</b> .....	<b>24</b>
4.1 Intake manifold - exploded view .....	24
4.2 Fuel rail - exploded view .....	25
4.3 Removing and installing intake manifold with fuel rail .....	26
4.4 Removing and installing fuel rail .....	30
<b>5 High-pressure pump</b> .....	<b>32</b>
5.1 High-pressure pump - exploded view .....	32
5.2 Removing and installing high-pressure pump .....	33
<b>6 Injectors</b> .....	<b>36</b>
6.1 Removing and installing injectors .....	36
6.2 Cleaning injectors .....	39
<b>7 Components of injection system</b> .....	<b>41</b>
7.1 Removing and installing fuel pressure sender G247 .....	41
7.2 Checking fuel pressure sender G247 .....	42
7.3 Checking residual pressure in fuel system (up to high-pressure pump) .....	44
7.4 Removing and installing air mass meter G70 .....	47
7.5 Removing and installing throttle valve module J338 .....	47
7.6 Cleaning throttle valve module J338 .....	48
7.7 Checking intake manifold change-over function .....	49
7.8 Checking dual non-return valve .....	50
<b>8 Lambda probes</b> .....	<b>53</b>
8.1 Lambda probes - overview .....	53
8.2 Removing and installing Lambda probe G39 and Lambda probe heater Z19 before catalytic converter .....	53
8.3 Removing and installing Lambda probe after catalytic converter G130 and Lambda probe 1 heater after catalytic converter Z29 .....	54
<b>9 Engine control unit</b> .....	<b>56</b>
9.1 Wiring and component check with test box V.A.G 1598/42 .....	56
9.2 Renewing engine control unit J623 .....	58
<b>28 - Ignition system</b> .....	<b>62</b>
<b>1 General notes and safety precautions</b> .....	<b>62</b>
1.1 General notes on ignition system .....	62
1.2 Safety precautions .....	62



<b>2</b>	<b>Servicing ignition system</b> .....	<b>63</b>
2.1	Test data .....	63
2.2	Ignition system - exploded view .....	63
2.3	Removing and installing ignition coils with output stages .....	64
2.4	Removing knock sensor 1 G61 .....	65
2.5	Removing and installing engine speed sender G28 .....	65